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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,816	04/16/2004	Ho-In Kim	5000-1-574	8684
33942	7590	08/02/2005	EXAMINER	
CHA & REITER, LLC 210 ROUTE 4 EAST STE 103 PARAMUS, NJ 07652			TRAN, CHUC	
			ART UNIT	PAPER NUMBER
			2821	

DATE MAILED: 08/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/825,816	Applicant(s) KIM ET AL.	
	Examiner Chuc D. Tran	Art Unit 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2004.
 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-17 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-10 and 13-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim (USP. 6,678,289).

Regarding claim 1, Kim disclose a gain-clamped semiconductor optical amplifier in Fig. 1 comprising:

- a gain waveguide (150) for amplifying an optical signal input to the gain waveguide (Col. 3, Line 13); and
- a grating layer having a first grating (130) on a portion of the grating layer, the first grating being disposed at a first end portion (Fig. 1), wherein the gain waveguide (150) is disposed on the grating layer in contact with the first grating (Fig. 1).

Regarding claim 2, Kim disclose that a second grating (140) disposed at a second end portion (Fig. 1).

Regarding claim 3, Kim disclose that a clad (180) laminated on the gain waveguide (150) (Fig. 1).

Regarding claim 4, Kim disclose that the first (130) and the second (140) gratings have reflection factors different from each other (Col.2, Line 61).

Regarding claim 5, Kim disclose that the gain waveguide includes a mode conversion

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region formed at one end portion of the gain waveguide, the mode conversion region (150, 160, 170) having a width which becomes narrower or wider as it goes to an end adjacent to the semiconductor optical amplifier (Fig. 1).

Regarding claim 6, Kim disclose that the mode conversion region (170) is not in contact with the first grating (130) (Fig. 1).

Regarding claim 7, Kim disclose that the mode conversion region (150) is in contact with a portion of the first grating (130) (Col. 3, Line 24).

Regarding claim 8, Kim disclose that the gain waveguide includes mode conversion regions formed at both sides of the gain waveguide (Fig. 1), the mode conversion regions having a width which becomes narrower or wider as it goes to a corresponding end of the semiconductor optical amplifier (Fig. 1).

Regarding claim 9, Kim disclose that the mode conversion regions (160) are not in contact with the first and the second gratings (130, 140) (Fig. 1).

Regarding claim 10, Kim disclose that each of the mode conversion regions are in contact with a portion of a grating adjacent to the mode conversion region (Fig. 1).

Regarding claim 13, Kim disclose that a non-reflection layer (230) disposed on a first end surface of the semiconductor optical amplifier, the first end surface serving as an input/output side of the semiconductor optical amplifier (Col. 4, Line 57); and

- a high reflection layer (220) disposed on a second end surface of the semiconductor optical amplifier (Fig. 1).

Regarding claim 14, Kim disclose a semiconductor optical amplifier comprising:

- a gain waveguide (170) arranged to amplify an optical signal input to the gain

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waveguide (Col. 3, Line 59), the optical signal being input and an amplified optical signal being output through a first end surface of the semiconductor optical amplifier (Abstract); and

- a grating layer having a grating on a portion (130, 140) of the grating layer (Col. 2, Line 59),

wherein the gain waveguide is disposed on the grating layer in contact with the grating (Fig. 1).

Regarding claim 15, Kim disclose that the grating layer has another grating on another portion of the grating layer (Col. 2, Lin 59).

Regarding claim 16, Kim disclose that grating and the another grating have reflection factors different from each other (Col. 2, Line 59-61).

Regarding claim 17, Kim disclose that the gain waveguide includes at least one mode conversion region (170) (Fig. 1).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Kim (USP. 20040109221).

Regarding claims 11 and 12, Kim (289) disclose a gain clamped semiconductor as set

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forth in the claims except non-reflection layers disposed on two portions of the semiconductor optical amplifier. Kim (221) teach in Fig. 2B the non-reflection layers (16) disposed on two portions of the semiconductor optical amplifier (Kim 221, Page 2, Col. b, Line 49). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kim (289) by using the non-reflection layers (16) disposed on two portions of the semiconductor optical amplifier as taught by Kim (221). The ordinary artisan would have been motivated to modify Kim (289) in the manner described above for the gain clamp optical amplifier area are shielded by an anti-reflection thin film (See Kim (221), Page 2, Col. a, Line 8).

Citation of relevant Prior Art

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prior art Shibata et al (US 20030067678) disclose optical amplifier.

Prior art Delprat et al (USP. 6,563,631) disclose tunable gain clamped semiconductor optical amplifier.

Prior art Tohyama et al (USP. 5,642,371) disclose optical transmission apparatus.

Prior art Lang et al (USP. 5,715,268) disclose laser amplifiers with suppressed self oscillation.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuc D. Tran whose telephone number is (571) 272-1829. The examiner can normally be reached on M-F Flex hours.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TC
July 28, 2005



**HOANG V. NGUYEN
PRIMARY EXAMINER**